Long-Term Effects of Low Birth Weight

Small infants may have a greater risk of developing heart disease or diabetes later in life.

A study of Jamaican children suggests that poor nutrition in the womb might have lifelong consequences for health. The results of the study could be important for many in the United States, as well as other countries.

Nutritionist Farook Jahoor of the Children's Nutrition Research Center (CNRC) in Houston, Texas, led a team of scientists in Houston and Jamaica in a study of Jamaican children who had been treated for malnutrition. Jahoor is an associate professor of pediatrics at Baylor College of Medicine in Houston. The center is a joint research facility of Baylor and the U.S. Department of Agriculture. The Agricultural Research Service, USDA's chief scientific agency, is a key partner in the CNRC.

The scientists found that some children, even after recovering from their low weight at birth, made less high-density lipoprotein (HDL) apolipoprotein A-1.

This protein transports cholesterol to the liver for removal from the body. It's the key part of "good" cholesterol's ability to protect the heart. Many scientists are studying its biochemical structure and how it controls cholesterol.

Jahoor's study, published recently in the December 1997 issue of the medical journal *Lancet*, showed that the levels of HDL apolipoprotein A-1 were related directly to the birth weight of the children: the lower the birth weight, the less HDL apolipoprotein A-1 they made.

It's no secret that too much cholesterol is a factor in development of heart disease. For this reason, the population is encouraged to eat a low-fat, low-cholesterol diet. However, this study suggests that those who were smaller than normal at birth may need to be even more careful and monitor their cholesterol levels more closely.

Naturally, this study will have to be confirmed by additional epidemiological findings.

While other research in England supports Jahoor's hypothesis, further studies will need to be done—perhaps with the Jamaican children—to confirm that the protein is reduced throughout life and affects cardiac health.

Jahoor's publication received extensive media coverage, but will the link prove itself as these children age?

And what does this finding mean for children in other parts of the world, including the United States?

It depends, explains Jahoor.

If low birth weight is a result of premature delivery, it may not be significant, since these infants may simply not have had enough time in the womb to reach normal birth weight.

However, if low birth weight (less than 3 kilograms, or 6.6 pounds at term) is a result of other factors, such as poor maternal nutrition or other causes of poor fetal nutrition, the infant might have a greater risk of developing heart disease and/or diabetes later in life.

Jahoor and his colleagues are currently studying these possibilities. If their findings are confirmed, it might be important to inform parents of low-birthweight infants that their children may have a greater risk of developing heart disease or diabetes later in life. The parents might then want to be particularly careful about the cholesterol and fat content of their children's diets.

Parents may wish to make their children aware of the greater risk, so they can make appropriate diet choices to reduce the risk as they age.

"Getting used to a diet is easier as a child than changing eating habits later in life," explains Jahoor. He cautions, however, that the study's findings are too preliminary to make firm recommendations.

—By **Jill Lee,** ARS.

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